

REMARKS

This paper is being provided in response to the Final Office Action dated May 18, 2006, for the above-referenced application. Applicant respectfully requests consideration of the following remarks.

The rejection of claims 33, 37, 55, 59, 63, 64, 68, 72, 73, 77, 81, 82, 86, 90 and 91 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,643,750 to Achiwa, et al. (hereinafter "Achiwa") in view of U.S. Patent No. 6,721,286 to Williams, et al. (hereinafter "Williams") and further in view of U.S. Patent No. 6,625,621 to Tan, et al. (hereinafter "Tan") is hereby traversed and reconsideration thereof is respectfully requested.

Independent claim 33 recites a method of transferring data from a first storage device to a second storage device. The method includes synchronously transferring the data from the first storage device to a first buffer device, asynchronously transferring the data from the first buffer device to a second buffer device, synchronously transferring the data from the second buffer device to the second storage device, wherein the first buffer device acknowledges successful transfer of the data to the first storage device prior to the first buffer device completing transfer of the data to the second buffer device, and providing the data from the first buffer device to the second buffer device using a network, wherein the data is provided from the first storage device in a first format and is provided to the network in a second format that is different from the first format. Claims 37 and 90 depend from independent claim 33.

Independent claim 55 recites a computer program product, implemented in a computer readable medium, that transfers data from a first storage device to a second storage device. The computer program product is recited as including executable code that synchronously transfers the data from the first storage device to a first buffer device, executable code that asynchronously transfers the data from the first buffer device to a second buffer device, executable code that synchronously transfers the data from the second buffer device to the second storage device, where the first buffer device acknowledges successful transfer of the data to the first storage device prior to the first buffer device completing transfer of the data to the second buffer device, and executable code that provides the data from the first buffer device to the second buffer device using a network, wherein the data is provided from the first storage device in a first format and is provided to the network in a second format that is different from the first format.

Claims 59 and 91 depend from independent claim 55.

Independent claim 63 is directed to a method of transmitting data from a first storage device to a second storage device. The method is recited as including the second storage device receiving the data from the first storage device and the first storage device providing the data to the second storage device using a network, where the data is acknowledged to the first storage device as being successfully received at the second storage device prior to all of the data being provided to the network. Claims 64 and 68 depend from independent claim 63.

Independent claim 72 is directed to a device that transmits data from a first storage device to a second storage device. The device is recited as including means for the second storage device to receive the data from the first storage device and means for the first storage device to

provide the data to the second storage device using a network, where the data is acknowledged to the first storage device as being successfully received at the second storage device prior to all of the data being provided to the network. Claims 73 and 77 depend from independent claim 72.

Independent claim 81 is directed to a computer program product, implemented in a computer readable medium, that transmits data from a first storage device to a second storage device. The computer program product is recited as including executable code that causes the second storage device to receive the data from the first storage device and executable code that causes the first storage device to provide the data to the second storage device using a network, wherein the data is acknowledged to the first storage device as being successfully received at the second storage device prior to all of the data being provided to the network. Claims 82 and 86 depend from independent claim 81.

Achiwa discloses, in col. 3, lines 22-58, a storage apparatus system having a host computer, a main storage apparatus system and a substorage apparatus system which is electrically connected to the main storage apparatus system. An instruction is transmitted from the host computer to the main storage apparatus system in such a way as to maintain the data of the main storage apparatus system at a time point when the instruction is issued and the fixed data is copied to the substORAGE apparatus system. Achiwa further discloses that the storage apparatus system may also be configured in such a way that the data which is maintained in the main storage apparatus system is transferred to the substORAGE system, and *after completion of the transfer of the maintained data*, a signal exhibiting the completion of the transfer of the data is transferred from the main storage apparatus system to the sub-storage apparatus system, so

that with the reception of the signal exhibiting the completion of the data transfer as a turning point, the data is structured in the substorage apparatus system.

Moreover, Achiwa also teaches that maintaining the state of the data is provided by storing the data in a first storage area of the main storage apparatus system until the instruction is issued from the host computer to copy. After the instruction has been issued from the host computer, the data which was stored in the first storage area at a time point of the issue of the instruction to a second storage area of the main storage apparatus, and in the step of transferring the data, the data which has been copied to the second storage area can also be transferred to the sub-storage apparatus system. In addition, Achiwa also discloses that in the step of structuring the data, the maintained data which has been transferred is stored in a third storage area of the substorage apparatus system so that using the data which is held in the third storage area, the maintained data can also be structured in a fourth storage area of the substorage apparatus system.

The Williams reference discloses a method and apparatus for device interaction by format. The Office Action cites to Williams as teaching data being provided from the source in a first format to the network in a second format and teaches data being received by the destination in a third format wherein the second format is different from at least one of: the first format and the second format.

The Tan reference discloses a system and method for a fast and scalable synchronization server. The Office Action cites to Tan as disclosing a sync server that acknowledges successful

transmission of queued data changes to the record before all the data is sent to the network.

The Office Action indicates that, with respect to claims 33 and 55, "Applicant's claim language does not state that the buffer device is or has to be interposed between the storage devices . . ." Applicant submits that a functional interposition is being recited and points out that claim 33 is a claim for a method and claim 55 is a claim for a computer program product, implemented in a computer readable medium, that transfers data from a first storage device to a second storage device. Accordingly, the claims recite a functional relationship in transmission of the data among first and second storage devices and first and second buffer device. Specifically, claim 33 recites synchronously transferring the data from the first storage device to a first buffer device; asynchronously transferring the data from the first buffer device to a second buffer device; and synchronously transferring the data from the second buffer device to the second storage device. The data is transferred from a first storage device to a first buffer device to a second buffer device and to a second storage device in the manners as recited. The transmission of data to the buffer devices is functionally interposed between transmissions of data from the first storage device and to the second storage device. Claim 55 recites similar features. Thus, the claims explicitly recite this functional interposition. Accordingly, the assertion in the Office Action that this feature is not present in claims 33 and 55 should be reconsidered and these features appropriately considered with respect to the prior art, as discussed below.

Applicant respectfully submits that neither Achiwa, nor Williams, nor Tan, taken alone or in any combination, teach or fairly suggest at least the features of synchronously transferring the data from the first storage device to a first buffer device, asynchronously transferring the data

from the first buffer device to a second buffer device, and synchronously transferring the data from the second buffer device to the second storage device, as is claimed by Applicant.

Specifically, the Office Action cites col. 3, lines 33-42 of Achiwa as disclosing asynchronous transferring of data from the main storage apparatus to the substorage apparatus while citing col. 3, lines 22-32 and col. 3, lines 43-58 as disclosing synchronous data transfer. Applicant respectfully submits that Achiwa is silent as to whether the transmission of data is synchronous or asynchronous in the above-cited portions. In col. 3, lines 33-42, Achiwa states merely that data is transferred from the main storage apparatus system to the substorage system and does not specify asynchronous data transmission, nor, in the other portions cited above, does Achiwa necessarily specify synchronous data transmission. Accordingly, Applicant submits that the features of synchronously transferring the data from the first storage device to a first buffer device, asynchronously transferring the data from the first buffer device to a second buffer device, and synchronously transferring the data from the second buffer device to the second storage device, as recited by Applicant, are not disclosed by Achiwa. Moreover, Applicant respectfully submits that this deficiency of Achiwa with respect to Applicant's claims is not overcome by either the Williams or Tan references, taken alone or in any combination.

Furthermore, Applicant specifically draws attention to the fact that Achiwa explicitly discloses signaling the host *after* completion of the transfer of data from the first storage device to the second storage device. Achiwa states at col. 3, lines 34-39: "... data which is maintained in the main storage apparatus system is transferred to the substorage system, *and after completion of the transfer of the maintained data, a signal exhibiting the completion of the*

transfer of the data is transferred from the main storage apparatus to the sub-storage apparatus system " (emphasis added). Achiwa explicitly identifies a signal "exhibiting the completion of the transfer of the data" and, in fact, specifies that reception of this signal is a "turning point" in Achiwa's system concerning structure of the data in the substorage apparatus system. The Office Action suggests that Achiwa is used in the rejection for purposes other than for teaching acknowledgement of successful transmission; however, the Office Action then proceeds to combine Achiwa with another reference, Tan, for the specific purpose of obtaining the feature of acknowledgement of successfully transmission *prior to* completion of the transfer of data. It is not a reasonable interpretation of the prior art to discard Achiwa's teaching of acknowledgement of successful transmission that is specifically defined as occurring after completion of the transfer of the maintained data to achieve a result that is explicitly opposite thereto. Thus, the proposed combination of the Achiwa and Tan references by the Office Action requires that a portion of Achiwa's disclosure be altered in a way contrary to Achiwa's explicit teachings. This is an improper combination of the prior art with respect to the patentability of Applicant's presently claimed invention in that one of ordinary skill in the art would have no motivation to do so, and, indeed, the result of any such combination can not be clearly appreciated because it arguably renders Achiwa's device as inoperative.

Accordingly, in view of the above, Applicant respectfully requests that the above-noted rejection be reconsidered and withdrawn

The rejection of claims 34, 35, 38, 39, 56, 57, 60, 61, 65-67, 69-71, 74-76, 78-80, 83-85, and 87-89 under 35 U.S.C. 103(a) as being unpatentable over Achiwa in view of Williams and

Tan and further in view of Applicants' admitted prior art (hereinafter "Applicant's APA") is hereby traversed and reconsideration thereof is respectfully requested.

All of the claims set forth in this rejection depend from one of the independent claims discussed above in connection with the rejection based on Achiwa, Williams and Tan. Applicant respectfully submits that the deficiencies of Achiwa, Williams and Tan with respect to the independent claims, discussed above, are not overcome by the addition of Applicant's APA. Accordingly, Applicant respectfully requests that this rejection be withdrawn

Based on the above, applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
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